Specifications

The contractor shall provide a high power pulsed signal source covering the frequency range of 1 to 26 Gigahertz (GHz). The high power pulsed signal source must be installed in a standard 19-Inch rack. The system must consist of 4 (four) power amplifiers covering the frequency range of 1-18 GHz and 1 (one) amplifier for the 18-26 GHz. frequency range. Local as well as remote control operation must be possible. Interface protocol is IEEE-488 general-purpose interface bus (GPIB).

Output power level control, fault protection may be provided, but a manual ability to bypass reflection protection and radio frequency (RF) sample port in order to provide clean RF output, i.e. means for removal, replacement of this capability at user discretion shall be provided. The contractor shall provide appropriate hardware for installing direct output from each TWT, plus means to disable fault protection when operating in the direct mode. The contractor shall also provide all commercial documentation such operation manuals and instructions.

Specifications at 1-18 GHz.

Electrical:

Frequency Range	1 to 18 GHz in 4 sub-bands
Output Peak Power	
1-2.5 GHz	1000 Watts, minimum
2.5-8 GHz	2000 Watts, minimum
5-11 GHz	2000 Watts, minimum
8-18 GHz	2000 Watts, minimum

with instantaneous bandwidth over each sub-band as indicated above. Unit(s) must be modular in that each sub-band amplifier can be independently used in a stand-alone configuration if desired.

Duty Cycle	5% minimum
Pulse Repetition Frequency	100 Kilohertz (kHz), maximum
Pulse Width	100 Microseconds, maximum 50 Nanoseconds, minimum
Radio Frequency (RF) Gain Control Range	30 decibel (dB) With 1 dB Resolution
Harmonics	-3dBc, at 1 GHz; -30 dBc at 18 GHz
Noise and Spurious	-45dBc minimum, -50 dBc typical
Input Voltage Standing Wave Ration (VSWR)	2.0:1 (50 Ohms Impedance)
Output VSWR	2.0:1
Load VSWR	1.5:1
Prime Power	115/208 VAC, 60 Hertz (Hz), Single Phase, or 3

Phase

Protection	Amplifier Over-Temperature Over-Current/Arc Over-Voltage Power Supply Over-Temperature Phase Loss
Indicators	Equipment Status, Fault
RF Sample	50 dBc for each amplifier High Reflected RF Power (VSWR) (Manual override/disable)
Instrument Control	Local or Remote
Front Panel Controls	Power On, Operate/ Standby, Local/ Remote
Remote Protocol	IEEE-488 and RS-485

No VSWR or RF sensor
No input RF amplifier

Mechanical:

Connectors

Prime Power	MS3112E-14-5P
RF Output	Coaxial and Waveguide depending on the frequency bands
RF Output Power Sample	Type N (F)
Remote Control	DB-9
Size	19" Rack (W) X 36" (D, max) X 60" (H, max)
(Individual Amplifiers shall not be taller than 8.7")	
Cooling	Forced Air with integral fan

Environmental:

Operating Temperature	0° C to +50° C, ambient
Operating Altitude	Up to 10,000 feet above Mean Sea Level
Humidity	Up to 95% Radiohead (RH) Non-Condensing

Specifications at 18-26 GHz.

Electrical:

Prime Power	120 VAC
Frequency Range	18 to 26.5 GHz
Output Power	40 Watts min, 50 Watts typical
Gain	46 dB, minimum, 50 dB Typical
Gain Control	15 dB, minimum range
Input/Output VSWR	2.0:1 (50 Ohms Impedance)
Load VSWR	1.5:1 for full compliance
RF Sample	-40 dBc
Input Voltage	120VAC, ±10%, 50/60 Hz
TWT Protection	Over-Temperature Helix Over-Current Cathode Over-Current/Arc Over-Voltage High Reflected RF Power (VSWR) (Manual override/disable)
HVPS Protection	Over-Temperature, Over-Current
Indicators	Equipment Status, Fault, Elapsed Time
Front Panel Controls	"On/Off"; "Operate/Standby" "Local/Remote"
Remote	GPIB IEEE-488

Mechanical:

Connectors:

RF Input	WR-42 Wave Guide Flange or Type K (F)
RF Output	WR-42 Wave Guide Flange
RF Sample	WR-42 or Type K (F)
Remote Control	GPIB
AC Input	MS-3112E14-5P

Size	19" Rack (W) X 24.5" (D) X 7" (H)
Weight	80 Pounds, nominal
Cooling	Forced Air with integral fan

Environmental:

Operating Temperature	-10° C to +50° C, ambient
Operating Altitude	Up to 10,000 feet above Mean Sea Level
Humidity	Up to 95% RH Non-Condensing